

Near Infrared Spectroscopy

DA 7250™ Feed Calibration Package



In the feed industry, the DA 7250™ NIR Analyzer is used for its accuracy, speed, and flexibility. It's intended for analysis of feed ingredients and finished feeds. This calibration package consists of two parts:

- Basic – includes most parameters
- Extended – includes calibrations for additional parameters

Calibrations are based on advanced algorithms such as Artificial Neural Network (ANN) and Honigs Regression™.

FEED CALIBRATIONS

Product	Parameter	Unit	Samples	R	Range
MONOGASTRIC FEED					
Chick, broiler, layer poultry, Piglet, sow and grower pig	Moisture	%	17000+	0.90	6.8 – 16.9
	Protein	% As is	19000+	0.98	7.2 – 47.2
	Fat	% As is	7400+	0.97	1.6 – 11.7
	Fiber	% As is	4400+	0.94	0.5 – 15.0
	Starch	% As is	800+	0.88	10.6 – 57.1
	Ash	% As is	1100+	0.92	3.9 – 24.3
	Sugar	% As is	400+	0.90	1.6 – 6.4
	Calcium	% As is	900+	0.83	0.2 – 4.7
	Phosphorus	% As is	900+	0.92	0.4 – 1.8
RUMINANT FEED					
Calf, dairy, beef cattle, sheep, camel and horse	Moisture	%	4600+	0.88	7.5 - 25.2
	Protein	% As is	5100+	0.99	5.4 – 45.7
	Fat	% As is	3600+	0.98	0.8 – 16.3
	Fiber	% As is	1700+	0.96	1.7 – 20.8
	NDF	% As is	200+	0.91	11 – 37.6
	ADF	% As is	100+	0.97	8.0 – 20.0
	ADL	% As is	100+	0.91	1.2 – 6.6
	Starch	% As is	200+	0.95	16.8 – 56.0
	Ash	% As is	1800+	0.87	1.1 – 18.3
	Calcium	% As is	200+	0.73	0.4 – 4.9
	Phosphorus	% As is	100+	0.98	0.4 – 2.0

FEED CALIBRATIONS *cont.*

Product	Parameter	Unit	Samples	R	Range
AQUA FEED					
Fish and shrimp	Moisture	%	700+	0.99	1.0 – 14
	Protein	% As is	700+	0.97	15.8 – 68.1
	Fat	% As is	500+	0.99	2.4 – 33.6
	Fiber	% As is	<100	0.93	0.3 – 3.1
	Ash	% As is	600+	0.97	2.5 – 15.6
	Phosphorus	% As is	100+	0.84	0.7 – 1.7

GRAIN CALIBRATIONS

Product	Parameter	Unit	Samples	R	Range
BARLEY					
	Moisture	%	2400+	0.96	6.8 – 30.3
	Protein	% As is	2400+	0.89	6.4 – 15.8
	Starch	% As is	1500+	0.82	43.1 – 60.2
	Fiber	% As is	1300+	0.81	2.4 – 8.0
CORN					
	Moisture	%	6400+	0.99	4.0 – 44.0
	Protein	% As is	3700+	0.97	3.5 – 15.8
	Oil	% As is	3400+	0.97	1.5 – 13.6
	Starch	% As is	1000+	0.94	40.0 – 73.0
OATS					
	Moisture	%	600+	0.96	7.0 – 20.4
	Protein	% As is	200+	0.92	5.0 – 14.8
	Fat	% As is	100+	0.95	1.7 – 9.0
	Ash	% As is	100+	0.79	2.2 – 5.5
	Crude fiber	% As is	100+	0.96	1.79 – 27.7
LENTILS					
Red and green	Moisture	%	400+	0.96	7.8 – 13.2
	Protein	% Dry basis	300+	0.94	19.2 – 30.1
PEAS					
	Moisture	%	200+	0.98	7.2 – 16.8
	Protein	% As is	200+	0.98	16.7 – 36.8
RICE					
White polished	Moisture	%	300+	0.96	10.1 – 16.6
	Protein	% Dry basis	800+	0.97	5.7 – 13.8
	Starch	% Dry basis	<100	0.93	83.6 – 94.2
RYE/TRITICALE					
Rye and Triticale	Moisture	%	300+	0.99	9.5 – 23.9
	Protein	% Dry basis	200+	0.96	6.8 – 14.7
	Starch	% Dry basis	200+	0.95	51.1 – 73.5
	Ash	% Dry basis	100+	0.85	1.4 – 2.6
	Fiber	% Dry basis	<100	0.91	2.2 – 3.7

GRAIN CALIBRATIONS *cont.*

Product	Parameter	Unit	Samples	R	Range
SORGHUM					
	Moisture	%	500+	0.99	7.4 – 16.1
	Protein	% Dry basis	500+	0.95	7.3 – 16.4
	Starch	% Dry basis	100+	0.95	58.6 – 80.0
WHEAT					
	Moisture	%	4000+	0.97	7.3 – 22.1
	Protein	% Dry basis	4200+	0.98	8.2 – 22.9
	Starch	% Dry basis	1200+	0.97	61.5 – 83.0
	NDF	% Dry basis	<100	0.77	7.2 – 17.4

GRAIN BASED PRODUCT CALIBRATIONS

Product	Parameter	Unit	Samples	R	Range
CORN GLUTEN MEAL					
	Moisture	%	500+	0.93	3.8 – 16.3
	Protein	% As is	500+	0.93	42.0 – 72.3
	Fat	% As is	100+	0.94	1.9 – 11.3
	Fiber	% As is	<100	0.97	1.1 – 3.9
	Ash	% As is	<100	0.97	0.9 – 3.7
CORN GRITS					
	Moisture	%	1000+	0.99	5.9 – 15.3
	Protein	% As is	300+	0.93	5.1 – 9.0
	Oil	% As is	1000+	0.89	0.3 – 2.2
	Ash	% As is	300+	0.85	0.2 – 0.9
	Crude fiber	% As is	300+	0.73	0.2 – 1.4
	Starch	% As is	100+	0.85	70.0 – 78.9
DDG					
Corn-based	Moisture	%	800+	0.99	2.8 – 16.1
	Protein	% As is	800+	0.99	22.4 – 38.5
	Fat	% As is	500+	0.94	6.9 – 12.6
	Crude fiber	% As is	200+	0.92	5.8 – 12.5
	Ash	% As is	200+	0.93	2.7 – 6.5
	ADF	% As is	200+	0.90	6.5 – 17.9
	NDF	%	100+	0.80	20.3 – 32.3
	Starch	% As is	200+	0.93	0.5 – 15.3
	Sulfur	% As is	100+	0.92	0.3 – 1.3
Phosphorus	% As is	100+	0.88	0.5 – 1.0	
WHEAT BRAN AND MIDLINGS					
	Moisture	%	500+	0.93	6.9 – 17.0
	Protein	% As is	500+	0.91	11.6 – 18.8
	Fat	% As is	400+	0.92	1.7 – 6
	Fiber	% As is	300+	0.82	2.1 – 11.5
	Ash	% As is	300+	0.88	2.1 – 6.1
	Starch	% Dry basis	700+	0.91	3.8 – 49.3

OILSEED PRODUCT CALIBRATIONS

Product	Parameter	Unit	Samples	R	Range
CANOLA/RAPESEED MEAL					
Canola/Rapeseed expeller, meal and expelled meal	Moisture	%	3000+	0.99	1.2 – 15.3
	Protein	% As is	1600+	0.98	25.0 – 44.0
	Oil	% As is	2600+	0.99	0.5 – 34.6
	Fiber	% As is	1000+	0.89	5.1 – 15.8
	Ash	% As is	300+	0.93	4.4 – 7.2
SOYBEAN MEAL					
Soymeal, expelled meal, full fat, flour and flakes	Moisture	%	10300+	0.98	1.0 – 18.4
	Protein	% As is	11300+	0.96	34.8 – 56.5
	Fat	% As is	9300+	0.99	0.1 – 22.3
	Fiber	% As is	6100+	0.95	0.2 – 10.2
	Ash	% As is	2700+	0.77	4.7 – 8.1
	PDI	% As is	2500+	0.98	5.7 – 98.7
SOYMEAL*					
	Aspartic acid*	% Dry basis	1800+	0.88	4.4 – 6.7
	Threonine*	% Dry basis	1800+	0.82	1.4 – 2.3
	Serine*	% Dry basis	1700+	0.62	1.6 – 2.8
	Glutamic acid*	% Dry basis	1800+	0.89	6.7 – 11.0
	Proline*	% Dry basis	1800+	0.83	1.7 – 2.9
	Glycine*	% Dry basis	1800+	0.87	1.5 – 2.4
	Alanine*	% Dry basis	1700+	0.84	1.6 – 2.5
	Cysteine*	% Dry basis	1800+	0.81	0.6 – 0.9
	Valine*	% Dry basis	1800+	0.74	1.8 – 2.9
	Methionine*	% Dry basis	1800+	0.81	0.5 – 0.8
	Isoleucine*	% Dry basis	1800+	0.78	1.7 – 2.8
	Leucine*	% Dry basis	1800+	0.87	3.0 – 4.6
	Tyrosine*	% Dry basis	1800+	0.85	1.4 – 2.1
	Phenylalanine*	% Dry basis	1800+	0.88	1.9 – 2.9
	Lysine*	% Dry basis	1800+	0.87	2.5 – 3.7
	Histidine*	% Dry basis	1800+	0.84	1.0 – 1.5
	Arginine*	% Dry basis	1900+	0.88	2.8 – 4.3
	Tryptophan*	% Dry basis	1800+	0.78	0.5 – 0.8
SOY HULLS					
	Moisture	%	400+	0.99	4.0 – 16.5
	Protein	% As is	100+	0.98	9.3 – 20.2
	Fat	% As is	300+	0.97	0.6 – 5.3
	Fiber	% As is	100+	0.96	27.5 – 41.3
SUNFLOWER MEAL					
	Moisture	%	2000+	0.95	4.6 – 14.19
	Protein	% Dry basis	1800+	0.91	25.0 – 51.2
	Fat	% Dry basis	1300+	0.99	0.5 – 25.3
	Fiber	% Dry basis	300+	0.91	13.9 – 30.9
	Ash	% Dry basis	200+	0.79	5.8 – 10.3

ANIMAL PROTEIN CALIBRATIONS

Product	Parameter	Unit	Samples	R	Range
FEATHER MEAL					
	Moisture	%	2900+	0.89	0.7 – 15.9
	Protein	% As is	2600+	0.96	38.2 – 89.1
	Fat	% As is	2800+	0.92	5.2 – 32.6
	Ash	% As is	2900+	0.95	0.6 – 43.2
FISH MEAL					
	Moisture	%	4100+	0.94	0.1 – 15.8
	Protein	% As is	5100+	0.89	39.8 – 79.6
	Fat	% As is	3900+	0.91	4.3 – 18.7
	Ash	% As is	3600+	0.88	8.3 – 28.0
	TVN	mg/100g	2800+	0.91	58.0 – 250.0
	Histamine	ppm	1100+	0.95	7.0 – 4030.0
	FFA	% As is	1500+	0.87	3.8 – 13.2
	Chloride	% As is	1800+	0.95	0.7 – 9.9
	Acidity	% As is	400+	0.89	4.0 – 9.0
MEAT AND BONE MEAL					
	Moisture	%	1500+	0.98	1 – 9.1
	Protein	% As is	1500+	0.98	38.7 – 69.2
	Fat	% As is	1500+	0.98	4.3 – 24.6
	Ash	% As is	1500+	0.98	4.2 – 42.5
	Arginine*	% As is	300+	0.94	2.9 – 4.8
	Cysteine*	% As is	300+	0.98	0.2 – 3.1
	Isoleucine*	% As is	300+	0.98	0.8 – 3.2
	Leucine*	% As is	300+	0.98	1.8 – 5.7
	Lysine*	% As is	300+	0.96	1.7 – 4.4
	Methionine*	% As is	300+	0.95	0.4 – 1.7
	Threonine*	% As is	300+	0.98	1.0 – 3.1
	Tryptophan*	% As is	300+	0.93	0.2 – 0.7
	Valine*	% As is	300+	0.97	1.4 – 4.9
POULTRY MEAL					
	Moisture	%	1800+	0.98	1.0 – 10.6
	Protein	% As is	1600+	0.99	38.8 – 77.6
	Fat	% As is	1800+	0.97	7.1 – 24.8
	Ash	% As is	1900+	0.99	4.4 – 39.4
	Salt	% As is	400+	0.85	0.1 – 4.0

FORAGE CALIBRATIONS

Product	Parameter	Unit	Samples	R	Range
FORAGE, FRESH					
Corn silage, grass silage, hay, alfalfa/lucerne and green forage	Moisture	%	2000+	0.98	30.0 – 90.0
	Protein	% Dry basis	1800+	0.93	5.0 – 29.0
	Ash	% Dry basis	3500+	0.81	0.1 – 24.0
	NDF	% Dry basis	1300+	0.93	0.2 – 73.9
	ADF	% Dry basis	500+	0.92	17.9 – 50.5
	Crude fiber	% Dry basis	1400+	0.92	14.1 – 45.8
	Energy	MJ/kg	600+	0.85	7.3 – 12.5
FORAGE, DRIED AND GROUND					
Corn silage, grass, hay and alfalfa/lucerne	Moisture	%	2700+	0.96	2.0 – 30.0
	Protein	% Dry basis	2600+	0.96	3.6 – 28.8
	Fat	% Dry basis	900+	0.84	0.1 – 5.4
	Calcium	% As is	400+	0.66	0.1 – 0.5
	Phosphorous	% As is	400+	0.83	0.1 – 0.4
	Ash	% Dry basis	3500+	0.81	0.1 – 24.0
	NDF	% Dry basis	1300+	0.93	0.2 – 73.9
	ADF	% Dry basis	500+	0.92	17.9 – 50.5
	Crude fiber	% Dry basis	1400+	0.92	14.1 – 45.8
	Energy	MJ/kg	600+	0.85	7.3 – 12.5

*Only included in the Extended parameters package

Finished feed as well as grains and meals can be analyzed without grinding or other samples preparation.

Large samples dish is recommended for analyzing unground inhomogeneous samples.

Automatic conversion between display of results % As is or % Dry basis can be set

NIR is an indirect method and the actual accuracy will depend on the accuracy of the reference method which is used for comparison with the DA 7250™ Feed Analyzer. For most products and parameters a typical accuracy would be 1-1.5 times the accuracy of the reference method.

ADDITIONAL STARTER CALIBRATIONS

Additional starter feed ingredient calibration models, available on request.

Product	Parameter	Unit	Samples	R	Range
RICE BRAN					
De-fatted	Moisture	%	<100	0.99	9.1 - 13.1
	Protein	% As is	<100	0.83	15 - 18.3
	Fat	% As is	<100	0.99	0.9 - 3.6
Full fat	Moisture	%	100+	0.95	6.6 - 11.9
	Protein	% As is	100+	0.91	10 - 17.8
	Fat	% As is	100+	0.97	2.9 - 24.1
	Fiber	% As is	100+	0.93	3.1 - 12.9
CORN GERM MEAL					
	Moisture	%	100+	0.98	8.4 - 12.9
RICE FLOUR					
	Moisture	%	100+	0.96	8.1 - 13.0
	Protein	% As is	100+	0.91	4.4 - 8.8
	Fat	% As is	100+	0.86	0.1 - 2.4
	Ash	% As is	100+	0.94	0.1 - 1.2
RICE PROTEIN FLOUR					
Full fat	Moisture	%	<100	0.6	4.3 - 6.6
	Protein	% As is	<100	0.97	58.5 - 85.6
	Fat	% As is	<100	0.96	0.3 - 9.7
	Ash	% As is	<100	0.88	0.6 - 2.6
COTTONSEED HULLS					
	Moisture	%	200+	0.97	5.2 - 9.7
	Protein	% As is	200+	0.96	3.2 - 20
	Fat	% As is	200+	0.96	0.7 - 4.6
	Fiber	% As is	200+	0.96	25.4 - 52.6
COTTONSEED MEAL					
	Moisture	%	200+	0.97	7.1 - 17.3
	Protein	% As is	200+	0.97	30.9 - 46.3
	Fat	% As is	200+	0.98	5.2 - 8.6
	Fiber	% As is	100+	0.95	7.2 - 18.5
PALM EXPELLER					
	Moisture	%	<100	0.99	4.2 - 11.1
	Protein	% As is	<100	0.91	14.2 - 16.2
	Fat	% As is	<100	0.91	5.9 - 10.5
CASSAVA					
	Moisture	%	200+	0.88	8.0 - 14.6
	Starch	% As is	200+	0.79	68.6 - 76.4
	Fiber	% As is	200+	0.87	1.9 - 3.3
BLOOD MEAL					
	Moisture	%	<100	0.97	5.0 - 19.3
	Protein	% As is	<100	0.93	74.4 - 92.2
	Fat	% As is	<100	0.81	0.1 - 0.9
	Ash	% As is	<100	0.79	1.2 - 2.8

ADDITIONAL STARTER CALIBRATIONS *cont.*

Additional starter feed ingredient calibration models, available on request.

Product	Parameter	Unit	Samples	R	Range
WHEAT GLUTEN					
	Moisture	%	100+	0.96	4.5 - 7.6
	Protein	% Dry basis	100+	0.98	71,3 - 83,1
DDG					
Wheat based	Moisture	%	<100	0.98	4,6 – 17,5
	Protein	% As is	<100	0.98	28,2 – 37,8
	Starch	% As is	<100	0.94	5,9 – 11,5
	Water activity	% As is	<100	0.98	0,3 – 0,6
	ADF-n	% As is	<100	0.89	10 – 25

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